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NOTE BY THE SECRETARY-GENERAL

The Secretary-General has the honour to transmit to the Security Council the compendium of terms relating to items described in the annexes to the Special Commission's and International Atomic Energy Agency's plans for ongoing monitoring and verification (S/1995/215 and S/1995/208). The compendium of terms is an integral part of the mechanism for export/import monitoring for Iraq (S/1995/1017), called for under paragraph 7 of Security Council resolution 715 (1991) and adopted by the Council on 27 March 1996 by its resolution 1051 (1996).

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Annex

Handbook for Notifications of Exports to Iraq, Security Council resolution 1051 (1996)

COMPENDIUM OF TERMS

Introduction

1. Paragraph 11 of the export/import mechanism approved by the Security Council, contains the following provision:

> "The annexes to the plans for ongoing monitoring and verification, and any appendices thereto, identify the items and technologies which Iraq, as importer, and the Government of the supplier, as exporter, shall notify. A compendium of definitions of terms used in the annexes shall be provided to Governments. This compendium shall have the same status as the annexes."

2. The definitions in the compendium of definitions of terms hereunder are drawn directly from the revised annexes to the plans for ongoing monitoring and verification (S/1995/208 and Corr.1 and S/1995/215 and Corr.1 and Corr.2) and from definitions already employed in matters relating to international trade in the items and technologies concerned. Explanations and additional description are provided as necessary.

Definitions and terminology

3. Where the following terms appear in the text of the annexes, they are to be understood according to the following explanations.

"Accuracy": usually measured in terms of inaccuracy, defined as the maximum deviation, positive or negative, of an indicated value from an accepted standard or true value.

"Active tooling unit": a device for applying motive power, process energy or sensing to the workpiece.

"Adaptive control": a control system that adjusts the response from conditions detected during the operation (reference: "ISO" 2806-1980).

"Bandwidth" (of an oscilloscope): the band of frequencies over which the deflection on the cathode ray tube does not fall below 70.7 per cent of that at the maximum point measured with a constant input voltage to the oscilloscope amplifier.

"Basic scientific research": experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts, not primarily directed towards a specific practical aim or objective.

"Bias" (accelerometer): an accelerometer output when no acceleration is applied.

"Camming" (axial displacement): axial displacement in one revolution of the main spindle measured in a plane perpendicular to the spindle faceplate, at a point next to the circumference of the spindle faceplate (reference: "ISO" 230 Part 1-1986, para. 5.63).

"Capable of": see "usable in".

"Certified or screened" (microcircuit): an item guaranteed, or selected, to meet or exceed the required performance for the application.

"Circuit element": a single active or passive functional part of an electronic circuit, such as one diode, one transistor, one resistor, one capacitor, etc.

"Composite": a matrix and an additional phase or additional phases consisting of particles, whiskers, fibres or any combination thereof, present for a specific purpose or purposes.

"Compound rotary table": a table allowing the workpiece to rotate and tilt about two non-parallel axes, which can be coordinated simultaneously for "contouring control".

"Contouring control": two or more numerically controlled motions operating in accordance with instructions that specify the next required position and the required feed rates to that position. These feed rates are varied in relation to each other so that a desired contour is generated (reference: "ISO"/DIS 2806-1980).

"Corrosion resistant": for the purpose of items lists in the chemical annex, corrosion resistant means where all surfaces that come in direct contact with the chemicals being processed are made from the following:

(a) Glass (including vitrified or enamelled coatings or glass lining);

(b) Ceramics;

(c) Ferrosilicons;

(d) Titanium or titanium alloys (e.g., Monel 10 or 11, titanium 20, titanium nitride 70 or 90);

(e) Tantalum or tantalum alloys;

(f) Zirconium or zirconium alloys;

(g) Nickel or alloys with more than 40 per cent nickel by weight (e.g., Alloy 400, AMS 4675, ASME SB164-B, ASTM B127, DIN2. 4375, EN60, FM60, IN60, Hastalloy, Monel, K500, UNS NO4400);

(h) Alloys with more than 25 per cent nickel and 20 per cent chromium and/or copper by weight (e.g., Cunifer 30Cr, ENiCu-7, IN 732 X, Monel 67, Monel WE 187, UNS C71900);

(i) Graphite;

(j) Fluoropolymers (e.g. Aflex COP, Aflon COP88, F 40, Ftorlon, Ftoroplast, Neoflon, ETFE, Teflon, PVDF, Tefzel, PTFE, PE TFE 500 LZ, Haller);

(k) Natural or synthetic rubber coatings;

(l) Fibre reinforced polymers, including glass or graphite;

(m) Silver.

"Depleted uranium": uranium depleted in the isotope 235 below that occurring in nature.

"Designed or modified": describes equipment, parts, components or "software", which, as a result of "development" or modification, have specified properties that make them suitable for a particular purpose. "Designed or modified" equipment, parts, components or "software" can be used for other applications.

"Detector": a mechanical, electrical, optical or chemical device that automatically identifies and records, or registers a stimulus such as an environmental change in pressure or temperature, an electrical or electromagnetic signal or radiation from a radioactive material.

"Development": relating to all phases prior to serial "production", such as design, design research, design analysis, design concepts, assembly and testing of prototypes, pilot "production" schemes, design data, process of transforming design data into a product, configuration design, integration design, layouts.

"Digital computer": equipment which, in the form of one or more discrete variables:

(a) Accepts data;

(b) Stores data or instruction in fixed or alterable (writable) storage devices;

(c) Processes data by means of a stored sequence of instructions which is modifiable;

(d) Provides output of data.

Modifications of a stored sequence of instructions include replacement of fixed storage devices, but not a physical change in wiring or interconnections.

"Digital control": equipment, the functions of which are, partly or entirely, automatically controlled by stored and digitally coded electrical signals.

"Discrete component": a separately packaged "circuit element" with its own external connections.

"Drift rate" (gyro): the time rate of output deviation from the desired output. It consists of random and systematic components and is expressed as an equivalent input angular displacement per unit time with respect to inertial space.

"Electronic assembly": a number of electronic components (i.e., "circuit element", "discrete components", integrated circuits, etc.) connected together to perform (a) specific function(s), replaceable as an entity and "capable of" being disassembled.

"End effector": grippers, "active tooling units", and any other tooling that is attached to the baseplate on the end of a "robot" manipulator arm.

"Expert systems": systems providing results by application of rules to data which are stored independently of the "programme" and "capable of" any of the following:

(a) Modifying automatically the "source code" introduced by the user;

(b) Providing knowledge linked to a class of problems in quasi-natural language;

(c) Acquiring the knowledge required for their development (symbolic training).

"Fibrous or filamentary materials": continuous monofilaments, continuous yams and rovings, tapes, fabrics, random mats and braids, chopped fibres, staple fibres, and coherent fibre blankets, whiskers - either monocrystalline or polycrystalline - of any length, aromatic polyamide pulp.

"Flexible manufacturing unit" (FMU) or "flexible manufacturing system" (FMS) or "flexible manufacturing cell" (FMC): an entity which includes a combination of at least:

(a) A "digital computer", including its own "main storage" and its own related equipment; and

(b) Two or more of the following:

(i) A machine tool described in annex 3 (Nuclear), paragraph 60;

(ii) A dimensional inspection machine described in annex 3 (Nuclear), paragraph 54;

(iii) A "robot" described in annex 3 (Nuclear), paragraph 62;

(iv) Digitally controlled equipment described in annex 3 (Nuclear), paragraph 51.

"Guidance set": a system that integrates the process of measuring and computing a vehicle's position and velocity (i.e., navigation) with that of computing and sending commands to the vehicle's flight control systems to correct the trajectory.

"Instrumented range": the specified unambiguous display range of a radar.

"Insulation": applied to the components of a rocket motor, i.e., the case, nozzle, inlets, case closures; includes cured or semi-cured compounded rubber sheet stock containing an insulating or refractory material. It may also be incorporated as stress relief boots or flaps.

"Interior lining": material usable for the bond interface between the solid propellant and the case or insulating liner. Usually a liquid polymer-based dispersion of refractory or insulating materials, e.g., carbon-filled HTPB or other polymer with added curing agents sprayed or screeded over a case interior.

"In the public domain": "technology" or "software" which has been made available without restrictions, other than those arising from copyright, upon its further dissemination.

"ISO": abbreviation for the International Organization for Standardization.

"Isolated live cultures": see "micro-organisms".

"Isostatic presses": equipment "capable of" pressurizing a closed cavity through various media (gas, liquid, solid particles, etc.) to create equal pressure in all directions within the cavity upon a workpiece or material.

"Laser": an assembly of components which produce both spatially and temporally coherent light that is amplified by stimulated emission of radiation.

"Linearity" (usually measured in terms of non-linearity): maximum deviation of the actual characteristic (average of upscale and downscale readings), positive or negative, from a straight line so positioned as to equalize and minimize the maximum deviations.

"Magnetic gradiometers": instruments designed to detect the spatial variation of magnetic fields from sources external to the instrument. They consist of multiple "magnetometers" and associated electronics, the output of which is a measure of magnetic field gradient.

"Magnetometers": instruments designed to detect magnetic fields from sources external to the instrument. They consist of a single magnetic field sensing element and associated electronics, the output of which is a measure of magnetic field.

"Main storage": the primary storage for data or instructions for rapid access by a central processing unit. It consists of the internal storage of a "digital computer" and any hierarchical extension thereto, such as cache storage or non-sequentially accessed extended storage.

"Microcircuit": a combination of passive or active "circuit elements" or both which:

(a) Are formed by means of diffusion processes, implantation processes or deposition processes in or on a single semiconducting piece of material, a so-called "chip";

(b) Can be considered as indivisibly associated;

(c) Perform the function of a circuit.

"Micro-organisms": bacteria, viruses, mycoplasmas, rickettsiae or fungi, whether natural, enhanced or modified, either in the form of "isolated live cultures", including in dormant form or in dried preparations, or as material, including living material, which has been deliberately inoculated or contaminated with such cultures.

"Microprogramme": a sequence of elementary instructions, maintained in a special storage, the execution of which is initiated by the introduction of its reference instruction into an instruction register.

"Missile systems": complete rocket systems and unmanned air vehicle systems, including ballistic missiles, surface-to-surface missiles, space launch vehicles, sounding rockets, cruise missiles, target drones and reconnaissance drones.

"Motion control board": an "electronic assembly" specially designed to provide a computer system with the capability to coordinate simultaneously the motion of axes of machine tools for "contouring control".

"Numerical control": the automatic control of a process performed by a device that makes "use" of numeric data usually introduced as the operation is in progress (reference: "ISO" 2382).

"Part programme": an ordered set of instructions in a language and in a format required to cause operations to be effected under automatic control, which is either written in the form of a machine "programme" on an input medium or prepared as input data for processing in a computer to obtain a machine "programme" (reference: "ISO" 2806-1980).

"Positioning accuracy" (numerically controlled machine tools): determined and presented in conjunction with the requirements below:

(a) Test conditions (reference: "ISO"/DIS/230/2, para. 3):

(i) For 12 hours before and during measurements, the machine tool and "accuracy" measuring equipment will be kept at the same ambient temperature. During the premeasurement time, the slides of the machine will be continuously cycled identically to the way they will be cycled during the "accuracy" measurements;

(ii) The machine shall be equipped with any mechanical, electronic or "software" compensation to be exported with the machine;

(iii) "Accuracy" of measuring equipment for the measurements shall be at least four times more accurate than the expected machine tool "accuracy";

(iv) Power supply for slide drives shall be as follows:

a. Line voltage variation shall not be greater than ±10 per cent of nominal rated voltage;

b. Frequency variation shall not be greater than ±2 Hz of normal frequency;

c. Lineouts or interrupted service are not permitted;

(b) Test "programme" (reference: "ISO"/DIS/230/2, para. 4):

(i) Feed rate (velocity of slides) during measurement shall be the rapid traverse rate. It should be noted that in the case of machine tools which generate optical quality surfaces, the feed rate shall be equal to or less than 50 mm per minute;

(ii) Measurements shall be made in an incremental manner from one limit of the axis travel to the other without returning to the starting position for each move to the target position;

(iii) Axes not being measured shall be retained at mid-travel during test of an axis;

(c) Presentation of test results (reference: "ISO"/DIS/230/2, para. 2):

The results of the measurements must include:

(i) "Positioning accuracy" (A) and

(ii) The mean reversal error (B).

"Production": all "production" phases, including construction, "production" engineering, manufacture, integration, assembly (mounting), inspection, testing and quality assurance.

"Production equipment": tooling, templates, jigs, mandrels, moulds, dies, fixtures, alignment mechanisms, test equipment, other machinery and components therefor, limited to those specially "designed or modified" for "development" or for one or more phases of "production".

"Production facilities": equipment and specially designed "software" therefor integrated into installations for "development" or for one or more phases of "production".

"Programme": a sequence of instructions to carry out a process in, or convertible into, a form executable by an electronic computer.

"Radiation hardened":

Hot cell television cameras only: specially designed or rated to withstand greater than 5 x 10+4 grays (Si) (5 x 10+6 rad);

Components or equipment (excluding hot cell television cameras): designed or rated as radiation hardened to withstand greater than the following:

(a) Total irradiation dose of 1 x 10+5 rad Si; or

(b) Prompt dose rate of 5 x 10+8 rad Si/s.

"Real-time processing": processing of data by an electronic computer in response to an external event according to time requirements imposed by the external event.

"Robot": a manipulation mechanism, which may be of the continuous path or of the point-to-point variety, may "use" "sensors" and has all the following characteristics:

(a) Is multifunctional;

(b) Is "capable of" positioning or orienting material, parts, tools or special devices through variable movements in three-dimensional space;

(c) Incorporates three or more closed or open loop servo-devices, which may include stepping motors;

(d) Has user-accessible programmability by means of a teach/playback method or by means of an electronic computer which may be a programmable logic controller, i.e., without mechanical intervention.

The above definition does not include the following devices:

(a) Manipulation mechanisms which are only manually/teleoperator controllable;

(b) Fixed sequence manipulation mechanisms which are automated moving devices, operating according to mechanically fixed programmed motions. The "programme" is mechanically limited by fixed stops, such as pins or cams. The sequence of motions and the selection of paths or angles are not variable or changeable by mechanical, electronic or electrical means;

(c) Mechanically controlled variable sequence manipulation mechanisms which are automated moving devices, operating according to mechanically fixed programmed motions. The "programme" is mechanically limited by fixed, but adjustable, stops, such as pins or cams. The sequence of motions and the selection of paths or angles

are variable within the fixed "programme" pattern. Variations or modifications of the "programme" pattern (e.g., changes of pins exchanges of cams) in one or more motion axes are accomplished only through mechanical operations;

(d) Non-servo-controlled variable sequence manipulation mechanisms which are automated moving devices, operating according to mechanically fixed programmed motions. The "programme" is variable, but the sequence proceeds only by the binary signal from mechanically fixed electrical binary devices or adjustable stops;

(e) Stacker cranes defined as Cartesian coordinate manipulator systems manufactured as an integral part of a vertical array of storage bins and designed to access the contents of those bins for storage or retrieval;

(f) Robots specially designed for non-nuclear industrial applications such as automobile paint-spraying booths.

"Run out" (out-of-true-running): radial displacement in one revolution of the main spindle measured in a plane perpendicular to the spindle axis at a point on the external or internal revolving surface to be tested (reference: "ISO" 230 Part 1-1986, para. 5.61).

"Sensors": "detectors" of a physical phenomenon, the output of which (after conversion into a signal that can be interpreted by a controller) is able to generate "programmes" or modify programmed instructions or numerical "programme" data, including sensors with machine vision, infrared imaging, acoustical imaging, tactile feel, inertial position measuring, optical or acoustic ranging or force or torque measuring capabilities.

"Software": a collection of one or more "programmes" or "microprogrammes" fixed in any tangible medium of expression.

"Source code" or "source language": one or more processes which may be turned by a programming system into equipment executable form (object code (or object language)).

"Source material": uranium containing the mixture of isotopes occurring in nature; uranium depleted in the isotope 235; thorium; any of the foregoing in the form of metal, alloy, chemical compound or concentrate.

"Special fissile material": plutonium-239; uranium-235; uranium-233; uranium enriched in the isotopes 235 or 233; any material containing one or more of the foregoing.

"Specific modulus": Young's modulus in pascals, equivalent to N/m2 divided by specific weight in N/m3; measured at a temperature of 296 ± 2K and a relative humidity of 50 ± 5 per cent.

"Specific tensile strength": ultimate tensile strength in pascals, equivalent to N/m2 divided by specific weight in N/m3; measured at a temperature of 296 ± 2K and a relative humidity of 50 ± 5 per cent.

"Stability": standard deviation (1 sigma) of the variation of a particular parameter from its calibrated value measured under stable temperature conditions. This can be expressed as a function of time.

"Superalloys": nickel-, cobalt- or iron-base alloys having strengths superior to any alloys in the AISI 300 series at temperatures over 922 K under severe environmental and operating conditions.

"Technical assistance": transfer of knowledge, skills, or working knowledge, through training, instruction or consulting services. It may involve the transfer of "technical data". The "technical assistance" directly associated with any item in the annexes will be subject to a degree of scrutiny and control to the extent permitted by national legislation.

"Technical data": blueprints, plans, diagrams, models, tables, formulae, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape, read-only memories.

"Technology": specific information which is required for the "development", "production" or "use" of goods, including "technical data" or "technical assistance".

"Tilting spindle": a tool-holding spindle that, during the machining process, alters the angular position of its centre line with respect to any other axis.

"Toxins": deliberately isolated preparations or mixtures of toxins, no matter how produced, other than toxins present as contaminants of other materials such as pathological specimens, crops, foodstuffs, or seed stocks of "micro-organisms".

"Usable in" or "capable of": describes equipment, parts, components or "software" which are suitable for a particular purpose. There is no need for the equipment, parts, components or "software" to have been configured, modified or specified for the particular purpose.

"Use": operation, installation (including on-site installation), maintenance (checking), repair, overhaul and refurbishing.

"User-accessible programmability": the facility allowing a user to insert, modify or replace "programmes" by means other than:

(a) A physical change in wiring or interconnections;

(b) The setting of function controls including entry of parameters.